

Process inline filter PRFLD



50x 85x 130x 250x 520x 650x 1500x 2500x



Specifications	
Nominal size:	DN 50 – DN 400
$Q_{S \max}$:	1800 m³/h
$p_{S \max}$:	40 bar
Filtration ratings:	1 – 3000 µm

1. GENERAL

Product description

- Double inline filter, switchable
- Separation of solid contamination from water-based media
- Various filter materials of different filtration ratings can be used depending on the cleanliness requirements
- Monitoring of the differential pressure using an optional clogging indicator

Filter element technology

- Inline filter element, flow from outside to inside
- Filtration materials:
 - Wire mesh: 25 to 500 µm
 - Wedge wire: 50 to 3000 µm
 - Processmicron® polyester fleece: 1 to 90 µm (absolute)
 - Chemicron® metal fibre fleece: 1 to 20 µm (absolute)

Product advantages

- High filtration performance
- No interruption to operation while the filter element is being changed
- Simple handling
- Robust filter materials are ideally suited to long-term operation
- Regenerable or disposable filter elements possible as options
- Low operating costs
- Numerous equipment variants

Technical data, filter housing										
Size	Port dimensions [DN]	Materials					P _S max [bar]	T _S max ¹⁾ [°C]	Weight [kg]	Vol. [l]
		Stainless steel	Carbon steel							
			Welded, corrosion protection inside		Spheroidal graphite iron, corrosion protection inside					
			with- out	with	with- out	with				
50x	SAE 2" / G 2" DIN DN 50						PN 25	-10 to +90	38	2 x 4
85x	DIN DN 80						PN 40		90	2 x 9.5
130x	DIN DN 50 / 80 / 100 / 150						PN 6 / 10 / 16		180	2 x 26
									300	2 x 46
250x	DIN DN 100 / 150 / 200								660	2 x 118
									800	2 x 213
520x	DIN DN 150 / 200 / 250								1120	2 x 433
									2200	2 x 1390
650x	DIN DN 200 / 250 / 300									
1500x	DIN DN 250 / 300 / 400									
2500x	DIN DN 400									

Technical data, filter elements ²⁾									
Series	No. of filter elements ³⁾	Filter element model	Total area [cm²] ³⁾			Filter materials and filtration ratings ⁴⁾			
			Wedge wire	Wire mesh and Processmicron® bonded	Wire mesh and metal fleece, crimped	Processmicron polyester fleece	Chemicron® metal fibre fleece	Wire mesh	Wedge wire
50x	1	L-50x-	667	5665	4353	1	3 (absolute)	25	50
85x	1	L-85x-	1300	11171	8918	3		40	100
130x	1	L-130x-	1890	16825	14314	5		60	150
250x	3	L-85x-	3900	33513	26754	10		100	200
520x	4	L-130x-	7560	67300	57256	20		150	250
650x	5	L-130x-	9450	84125	71570	30	20 (absolute)	200	300
1500x	10	L-130x-	18900	168250	143140	40		250	400
2500x	17	L-260x-	64426	572050	486676	50		300	500
						70		400	1000
						90		500	2000

¹⁾ Internally coated container $T_{S \max} +60^{\circ}\text{C}$ – higher temperature on request

²⁾ All filter elements $\Delta p_{\max}$: 10 bar
Exception: $\Delta p_{\max}$ Wire mesh and Processmicron® with bonded end caps: 3 bar (bypass opening pressure); $\Delta p_{\max}$ Wedge wire size 853 / 1303 / 2603: 6 bar

³⁾ The information refers to one side section

⁴⁾ Filter elements with bonded end caps
 $T_{S \max} +50^{\circ}\text{C}$

2. FUNCTION AND SPECIAL FEATURES

FUNCTION

- Flow is only through one side of the housing during filtration
- Flow through the filter element is from the outside to the inside
- Solid particles are separated at the filter material
- Particle deposition during filtration increases the pressure loss
- The flow is switched to the other side of the housing at the change-over valve when the maximum differential pressure is reached.
- The filter elements can be removed from the free section side
- Processmicron® disposable elements must be replaced
- Regenerable filter elements (wedge wire, wire mesh, Chemicron® metal fibre fleece) can be cleaned

CLEANING FILTER ELEMENTS

Wedge wire and mesh wire filter elements

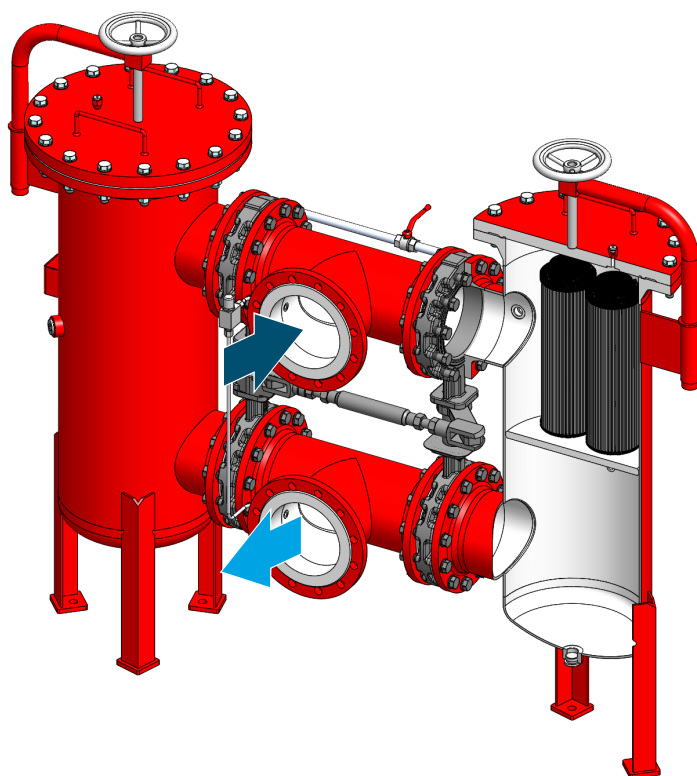
- High-pressure cleaner in the opposite filtration direction
- Specific solvent
- Ultrasonic bath
- Rinsing with water hose

Chemicron® metal fibre fleece

- Specific solvent
- Ultrasonic bath
- Rinsing with water hose
- Pyrolysis or vacuum pyrolysis if necessary

ACCESSORIES (OPTIONAL)

- Pivoting lid device
- Drain and vent ball valves
- Various clogging indicators



3. CLOGGING INDICATORS

Type	Figure	Description
Clogging indicator/differential pressure monitoring		
Visual PVD x B.x		• Visual display with green/red field • Automatic reset
Electrical PVD x C.x		• Electrical signal when trigger point is reached • Switch type: normally closed or normally open • Automatic reset
Visual-electrical PVD x D.x /-L...		• Lamp for visual display • Electrical signal (normally closed or normally open) • Automatic reset
Differential pressure gauge DS11		• 2 micro-switches (N/C or N/O) • Switch points of the micro-switches can be adjusted from outside • Measuring cell made from aluminium or stainless steel

4. FILTER CALCULATION*

CHECKLIST FOR FILTER CALCULATION

STEP 1: REQUIRED OPERATING DATA

- Observe the Pressure Equipment Directive PED 2014/68/EU
- Type of operating medium
- Viscosity
- Operating pressure
- Operating temperature
- Flow rate
- Required filtration rating
- Type of solid substances to be discharged
- Solid particle content

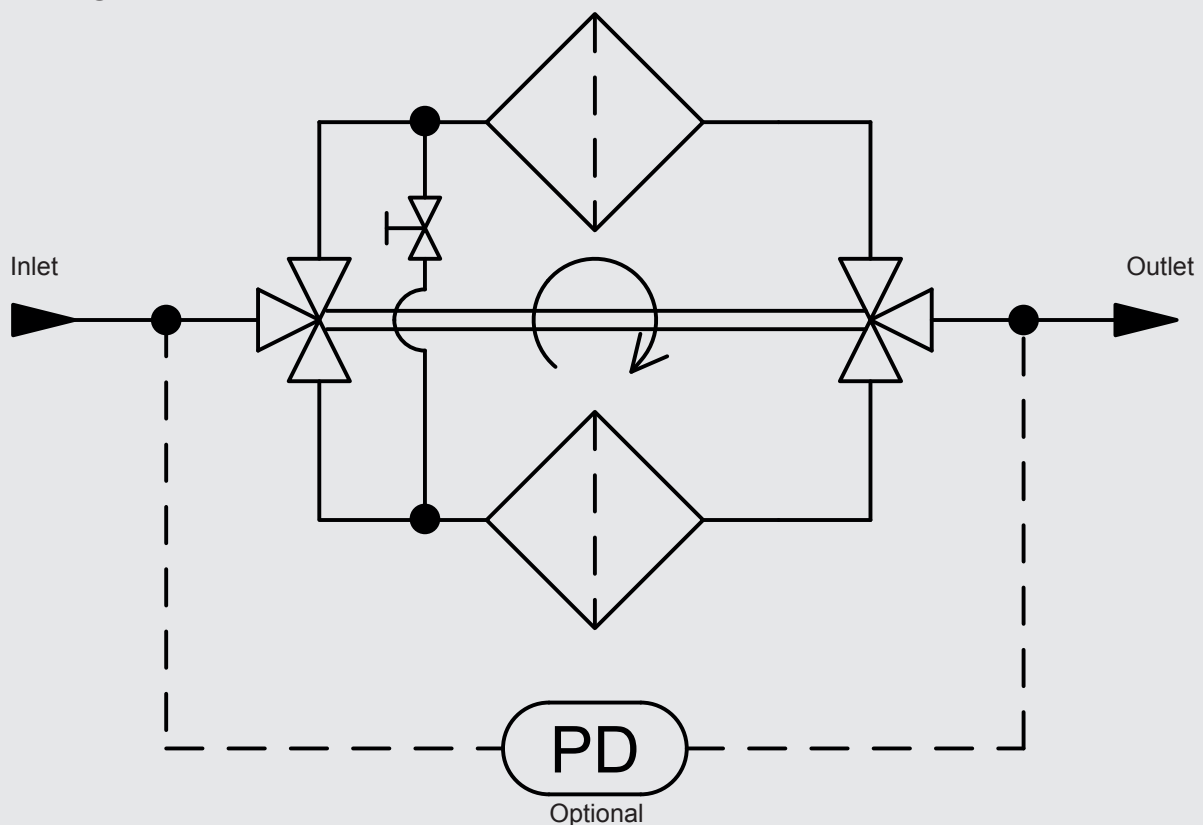
STEP 2: FILTER SIZING

- Hydraulic determination of size on basis of pressure drop curves
- The initial pressure difference for clean filter elements should not exceed the following values:
 - Operating pressure ≤ 6 bar; 0.2 bar
 - Operating pressure > 6 bar to 10 bar; 0.3 bar
- Housing material selected on basis of operating data and operating medium
- Sealing material selected on basis of operating data and operating medium
- Selection of nominal sizes for inlet and outlet flanges
- Different connection sizes can be selected for many sizes
- The flow velocity of 4 m/s at the flange inlet should not be exceeded

STEP 3: DETERMINING THE FILTRATION RATING

- **As a basic rule:**
as coarse as possible – as fine as necessary!

CIRCUIT DIAGRAM



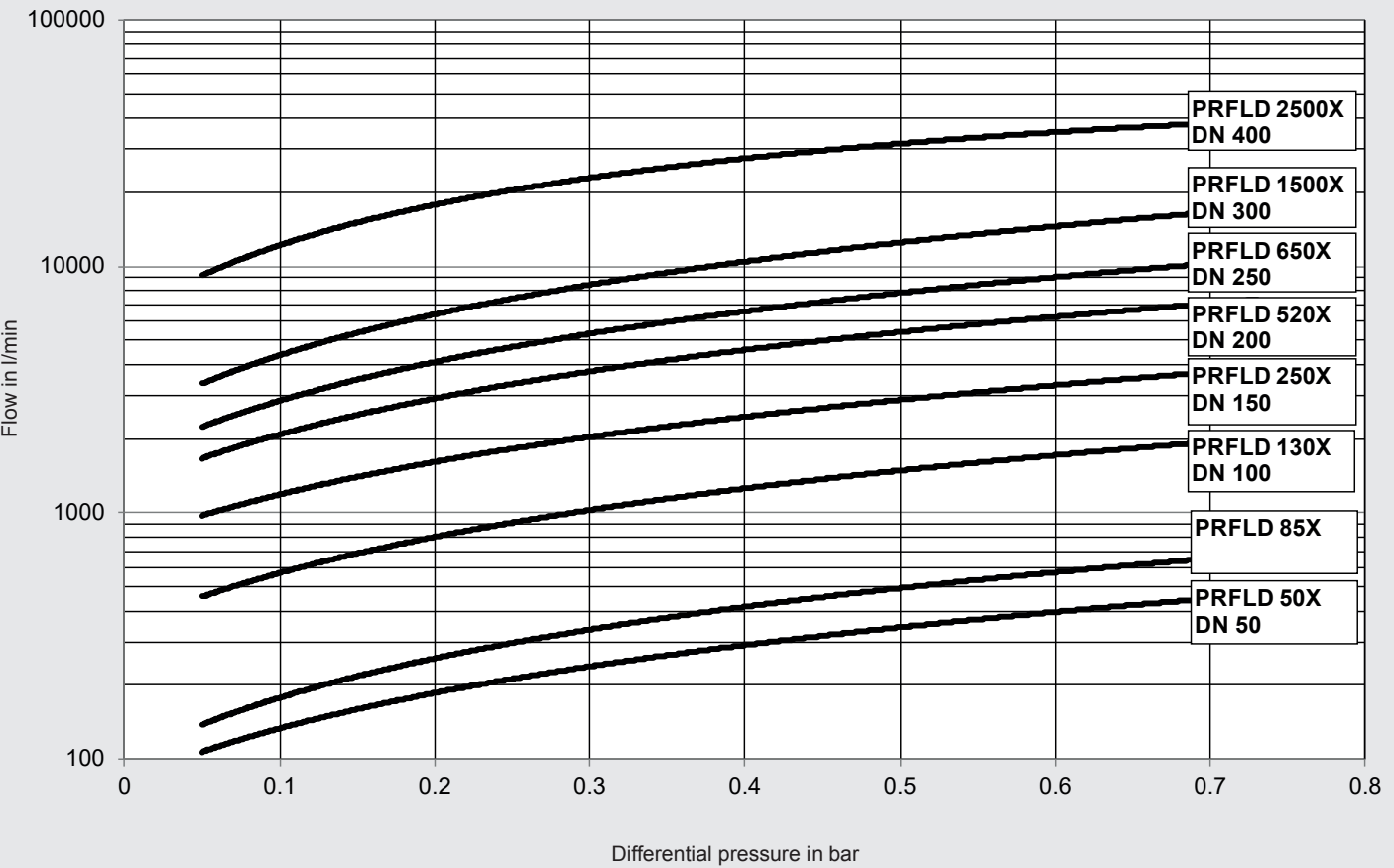
* Please contact our Head Office if you have any queries regarding the filter calculation.

HOUSING PRESSURE DROP CURVE

The housing characteristic curve for the overall pressure loss applies to filter elements made of wire mesh (all filtration ratings) and to 100 µm wedge wires. 30% should be added to the housing pressure drop for 50 µm wedge wire.

The curves apply to water at 20°C or fluids to 15 mm²/s!

Please contact the Head Office for filter elements < 20 µm (Processmicron® polyester fleece and Chemicon® metal fleece).



5. FILTER CONFIGURATION*

	Standard	Optional
Housing manufacture	AD technical data sheets 2014/68/EU	- ASME Code Design with or without U-stamp - EN 13445
Flange connections	- DIN / DIN EN - DN 50 to DN 700	- ASME - SAE
Housing materials	- Carbon steel - Stainless steel: 1.4301 or similar (group 304) - Stainless steel: 1.4571 or similar (group 316)	Others on request
External corrosion protection	2-layer epoxy coating (not applicable to stainless steel containers)	- PUR top coat (colour RAL 7040) - RAL/Munsell colours to customer specification (for carbon steel qualities)
Internal corrosion protection	2-comp epoxy internal coating (not applicable to stainless steel containers)	Various multi-layer coatings
Filter materials	- Processmicron® polyester fleece - Chemicron® metal fibre fleece - Wire mesh - Wedge wire	
Sealing materials	- FPM / FKM - Asbestos-free gasket	Various sealing materials on request, depending on the resistance to the fluid
Davit		With davit (from size 520x)
Differential pressure monitoring		- Visual - Electrical - Visual-electrical - Differential pressure gauge with 2 micro-switches
Documentation	Assembly and operating instructions	- Acceptance test certificate 3.1 according to DIN EN 10204 for design, pressure and functional testing - Material inspection certificates according to EN 10204, 3.1 for pressure-bearing media-contacting housing parts - Approvals: 3rd Parties (TÜV, ABS, Lloyd's, etc.) - Welding instructions (WPS) / test report (PQR / WPQ) - And much more besides on request

* Other versions and customised special solutions following consultation with our Head Office.

6. MODEL CODE

MODEL CODE FOR PROCESS INLINE FILTER PRFLD

PRFLD – SW – 2500E1 – A – AF12 – 3000 – 12 – 5 – 5 – 1234567

Filter type

PRFLD = Double inline filter, switchable

Filter material

PES = Processmicron® polyester fleece (disposable)
D = wire mesh with bonded end caps (regenerable)
DG = wire mesh with crimped end caps (regenerable)
M = Chemicron® metal fibre fleece with bonded end caps (regenerable)
MG = Chemicron® metal fibre fleece with crimped end caps (regenerable)
S = wedge wire with bonded end caps (regenerable)
SW = wedge wire with welded end caps (regenerable)

Size

50x = DN 50
85x = DN 80
130x = DN 50 / 80 / 100 / 150
250x = DN 100 / 150 / 200
520x = DN 150 / 200 / 250
650x = DN 200 / 250 / 300
1500x = DN 250 / 300 / 400
2500x = DN 400

Final digit x

E1 = housing stainless steel 1.4541 or similar (group 304)
not possible for PRFLD 50x and 85x
E2 = housing stainless steel 1.4571 or similar (group 316)
4 = housing carbon steel + epoxy internal coating
5 = housing carbon steel without coating

Housing pressure range

A = 6 bar
B = 10 bar
C = 16 bar
D = 25 bar: PRFLD 504 / 505 / 854 / 855 / 85E2 only in 25 bar
E = 40 bar: PRFLD 50E2 only in 40 bar

Connection code (see table)

F = flange according to DIN with nominal width afterwards, e.g. F100
AF = flange according to ASME with nominal width in inches afterwards
S = SAE connection with nominal size in inches afterwards (only possible up to 3 inches)
SC = SAE connection with counter flange and welding end

Filtration rating in µm

Processmicron PES fleece = 1 / 3 / 5 / 10 / 20 / 30 / 40 / 50 / 70 / 90 (absolute)
Chemicron® metal fibre fleece = 1 / 3 / 5 / 10 / 20 (absolute)
Wire mesh = 25 / 40 / 60 / 100 / 150 / 200 / 250 / 500
Wedge wire = 50 / 100 / 200 / 300 / 500 / 1000 / 2000 / 3000

Equipment

0 = without additional equipment
1 = davit
2 = vent and drain ball valve

Type of clogging indicator

0 = without clogging indicator
1 = visual indicator (PVD 2 B.1)
2 = visual-electrical indicator (PVD 2 D.0)
3 = visual-electrical – V01 analogue indicator (only possible under certain circumstances with cast iron, contact Head Office!)
4 = visual-analogue clogging indicator in aluminium with two adjustable contacts (0 – 4 bar)
(only possible under certain circumstances with cast iron, contact Head Office!)
5 = optical-analogue clogging indicator in stainless steel with two adjustable contacts (0 – 4 bar)
(only possible under certain circumstances with cast iron, contact Head Office!)
6 = electrical differential pressure switch (PVD 2 C.0)

Modification number

5 = determined by the manufacturer

Supplementary details

Code number for special equipment

6. MODEL CODE

MODEL CODE FOR FILTER ELEMENT

L - 1303 - D - 100 - V

Filter element design

Inline filter element

Size

503 / 853 / 1303 / 2603

Filter material

- PES = Processmicron® polyester fleece (disposable)
- D = wire mesh with bonded end caps (regenerable)
- DG = wire mesh with crimped end caps (regenerable)
- M = Chemicron® metal fibre fleece with bonded end caps (regenerable)
- MG = Chemicron® metal fibre fleece with crimped end caps (regenerable)
- S = wedge wire with bonded end caps (regenerable)
- SW = wedge wire with welded end caps (regenerable)

Filtration rating in µm

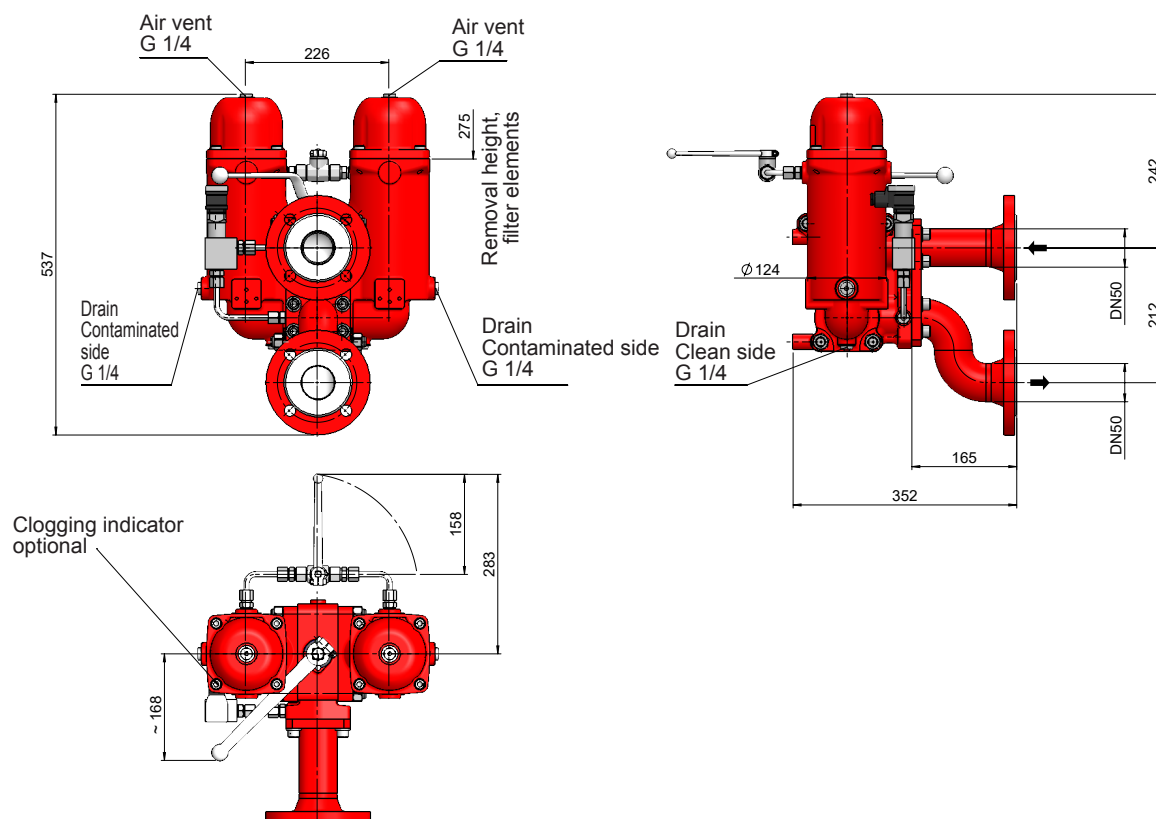
- Processmicron® polyester fleece = 1 / 3 / 5 / 10 / 20 / 30 / 40 / 50 / 70 / 90 (absolute)
- Chemicron® metal fibre fleece = 1 / 3 / 5 / 10 / 20 (absolute)
- Wire mesh = 25 / 40 / 60 / 100 / 150 / 200 / 250 / 500
- Wedge wire = 50 / 100 / 200 / 300 / 500 / 1000 / 2000 / 3000

Sealing material

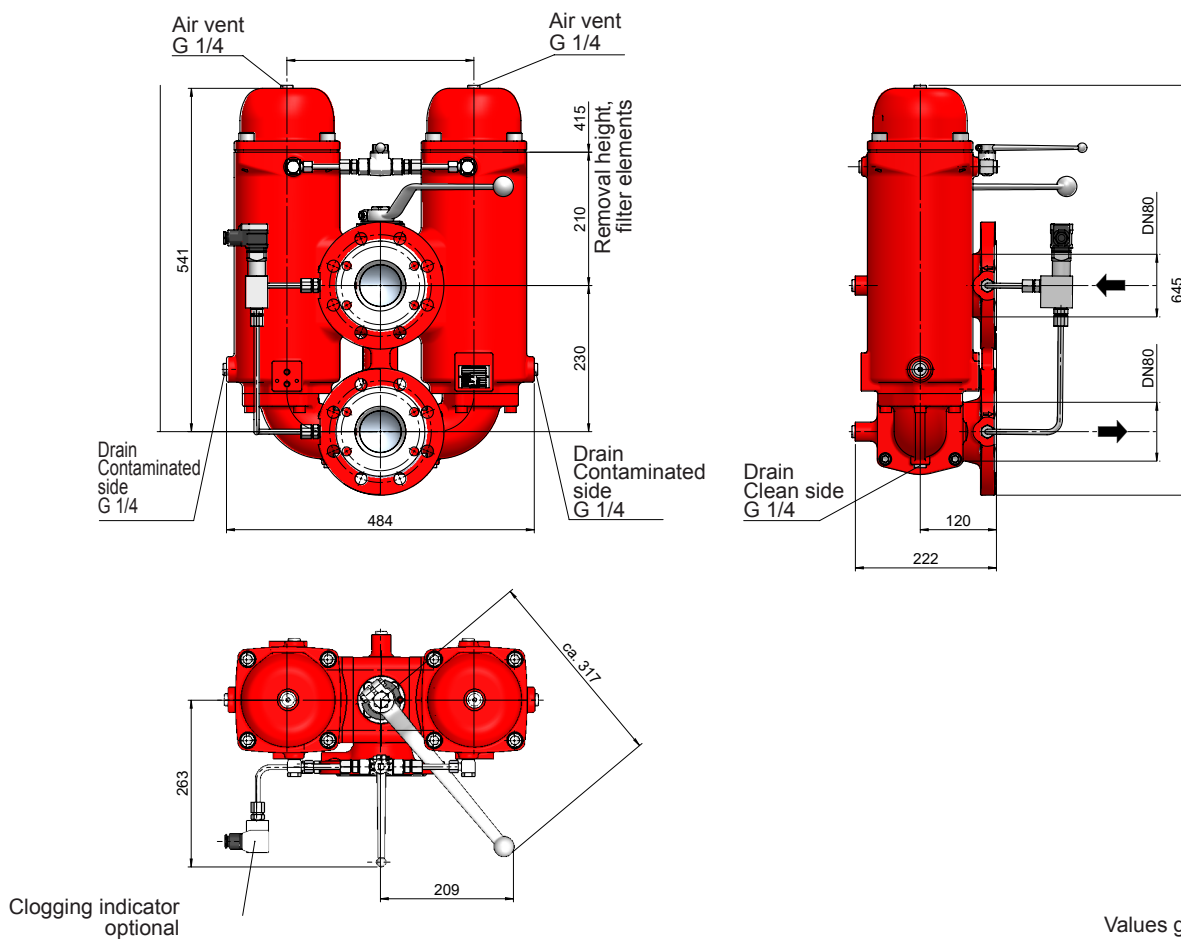
- V = FPM / FKM
- N = NBR
- E = EPDM
- S = Silicone

7. DIMENSIONS

PRFLD 504 / 505 Spheroidal graphite iron



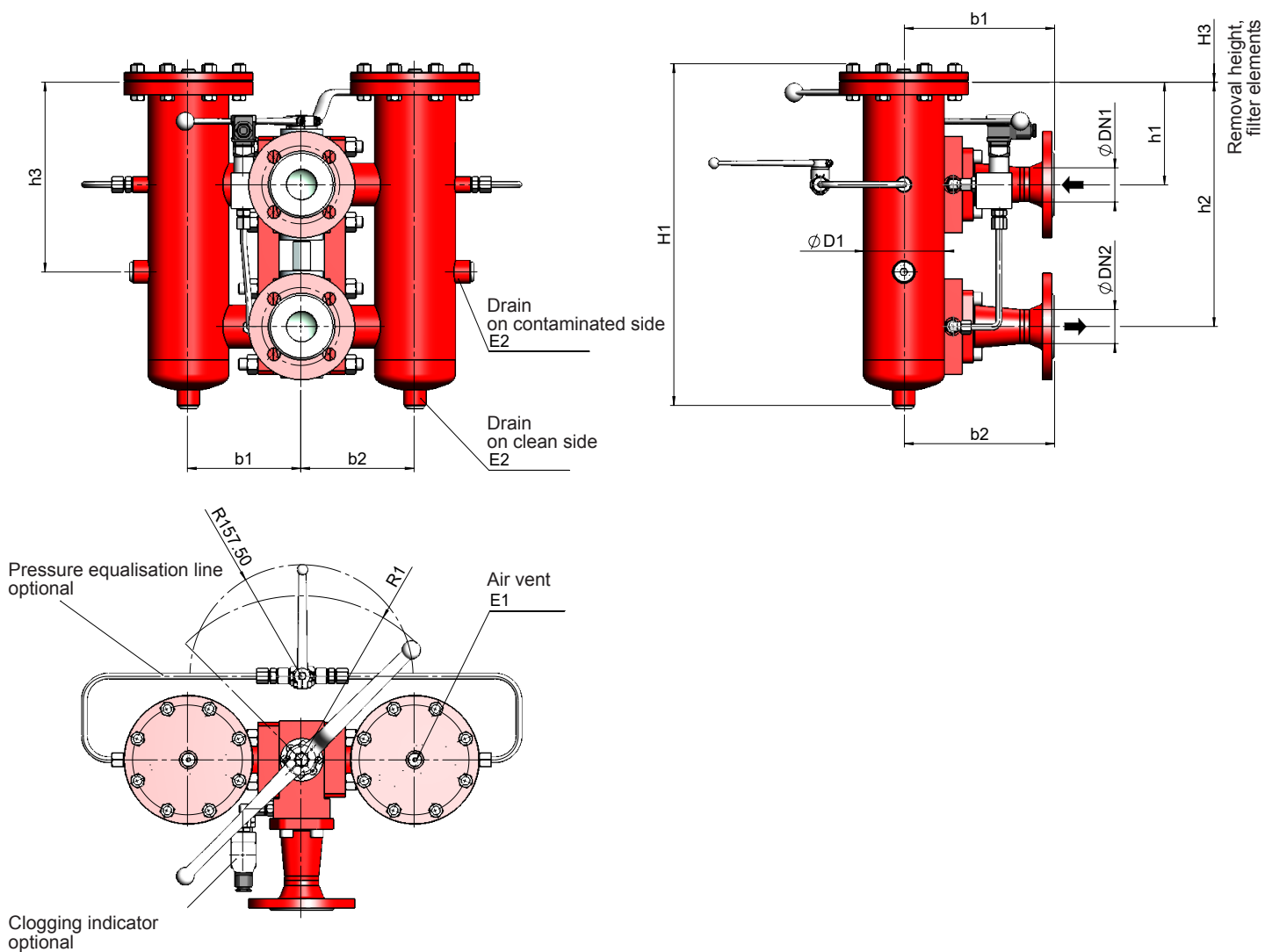
PRFLD 854 / 855 Spheroidal graphite iron



Values given in millimetres / inches.
Subject to technical modifications.

7. DIMENSIONS

PRFLD 50E2 / 85E2

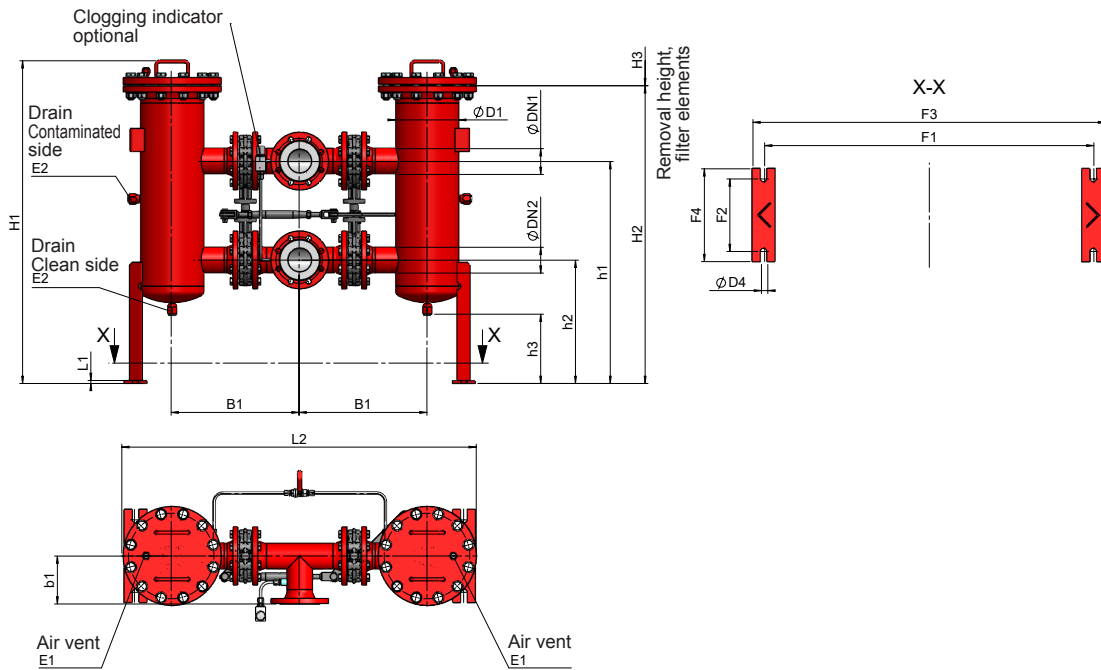


Values given in millimetres / inches.
Subject to technical modifications.

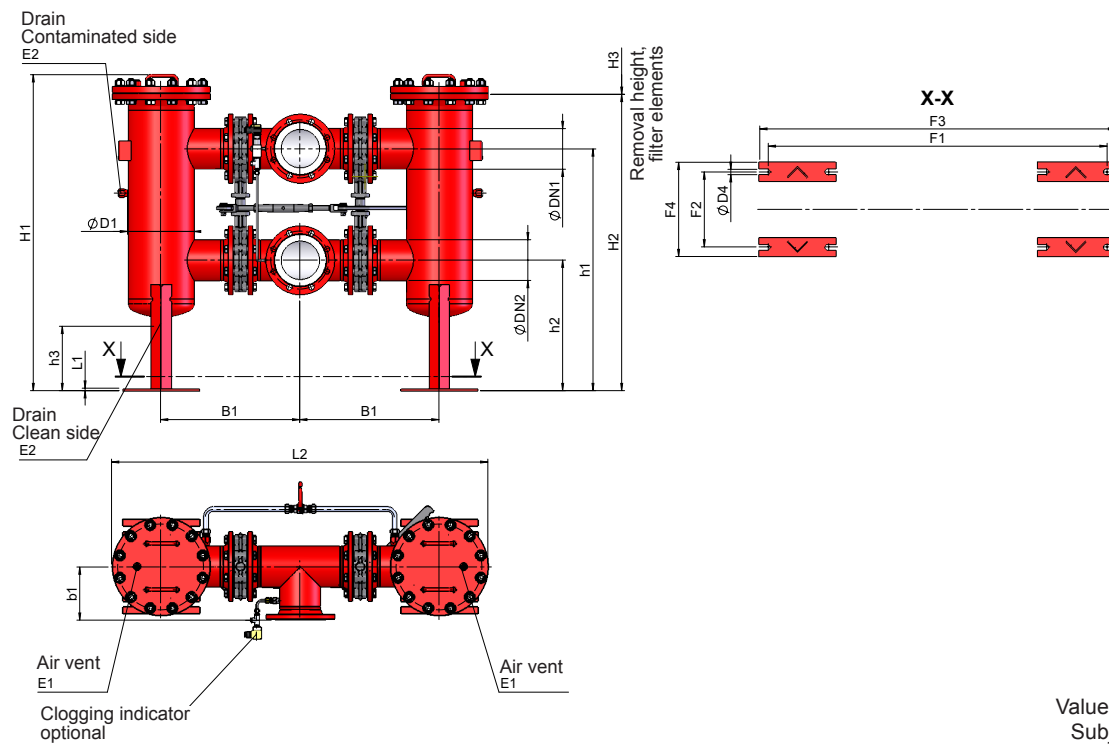
Size	DN1	DN2	b1	b2	h1	h2	h3	H1	H3	D1	R1	E1	E2
PRFLD 50E2	50	50	212	212	145	345	268	485	285	114.3	231	G1/4	G1/2
PRFLD 85E2	80	80	245	245	245	495	408	650	285	139.7	316	G1/4	G1/2

7. DIMENSIONS

PRFLD 130X



PRFLD 250X

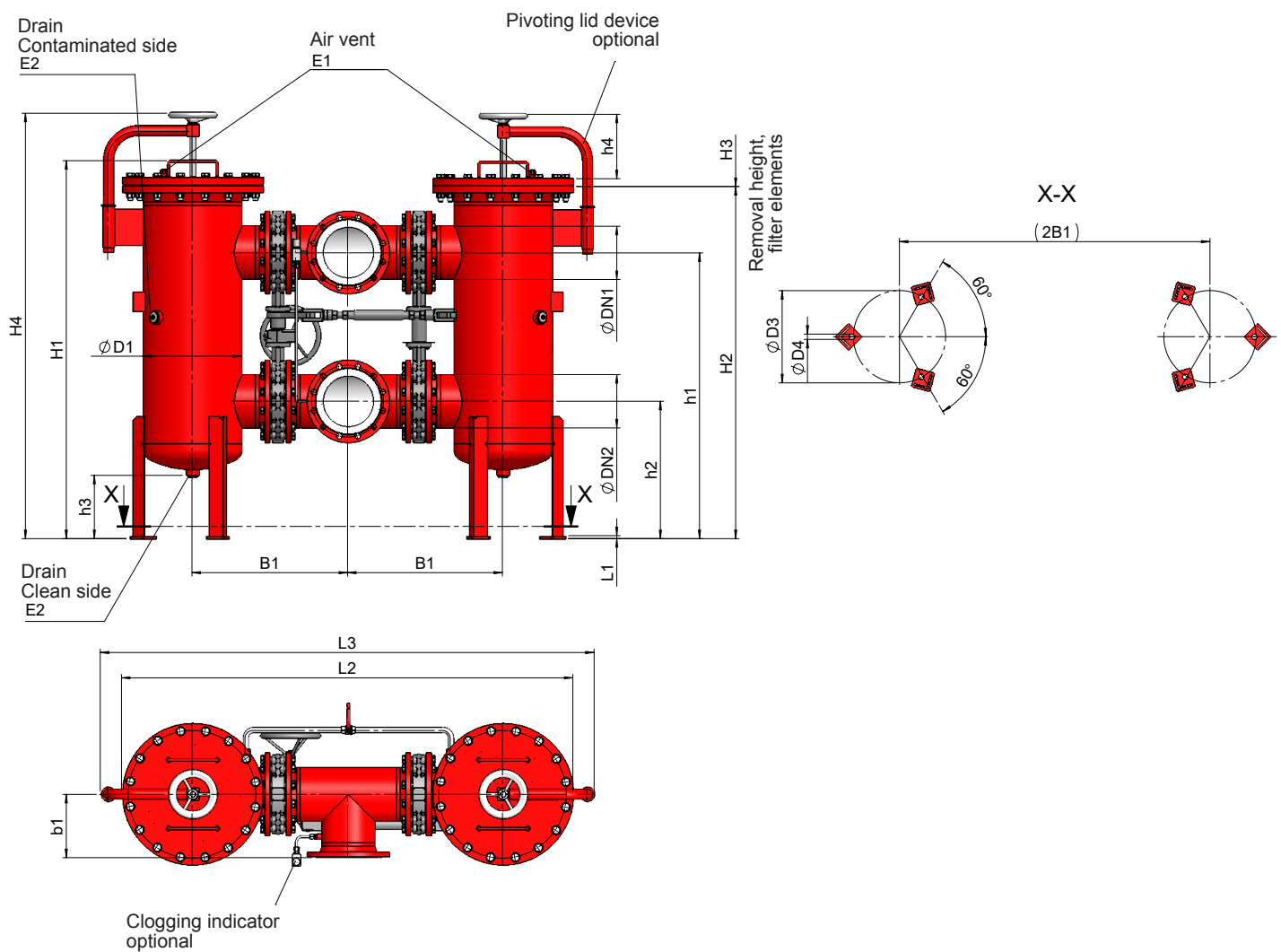


Values given in millimetres / inches.
Subject to technical modifications.

Size	Change-over valve		DN1	DN2	b1	h1	h2	h3	H1	H2	H3	L1	L2	B1	D1	D4	E1	E2	F1	F2	F3	F4
	Hand lever	Hand wheel																				
PRFLD 130x-F50	•		50	50	225	715	425	240	1135	1050	500	10	1180	418	219	22	G1/4	G1/2	1095	250	1175	320
PRFLD 130x-F80	•		80	80	225	765	425	240	1135	1050	500	10	1215	436	219	22	G1/4	G1/2	1130	250	1210	320
PRFLD 130x-F100	•		100	100	225	805	425	240	1135	1050	500	10	1255	457	219	22	G1/4	G1/2	1170	250	1250	320
PRFLD 130x-F150	•		150	150	225	885	425	200	1185	1100	500	10	1305	481	219	22	G1/4	G1/2	1220	250	1300	320
PRFLD 250x-F100	•		100	100	225	840	460	220	1135	1050	500	10	1370	482	273	22	G1/4	G1/2	1215	310	1285	390
PRFLD 250x-F150	•		150	150	225	920	460	220	1235	1150	500	10	1420	506	273	22	G1/4	G1/2	1265	310	1335	390
PRFLD 250x-F200		•	200	200	300	1070	460	200	1390	1300	500	10	1545	570	273	22	G1/4	G1/2	1390	310	1460	390
PRFLD 250x-F250		•	250	250	300	1180	460	200	1505	1435	500	10	1740	668	273	22	G1/4	G1/2	1585	310	1655	390

7. DIMENSIONS

PRFLD 520X - 2500X

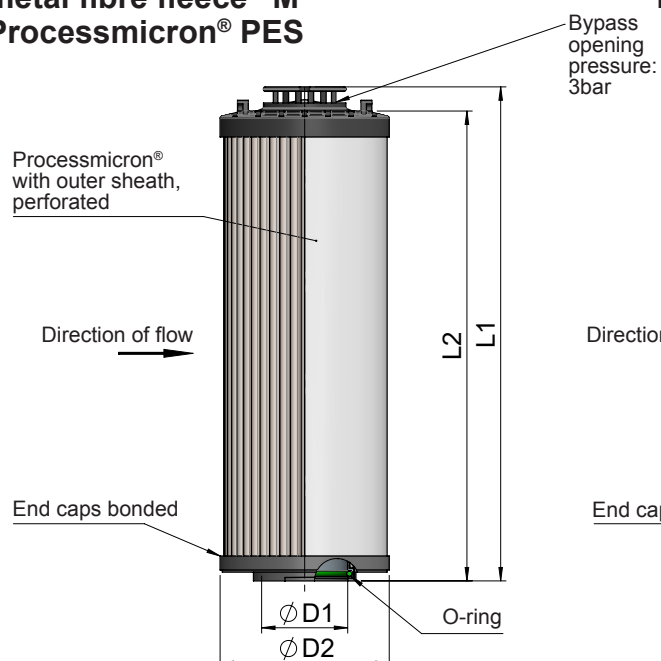


Values given in millimetres / inches.
Subject to technical modifications.

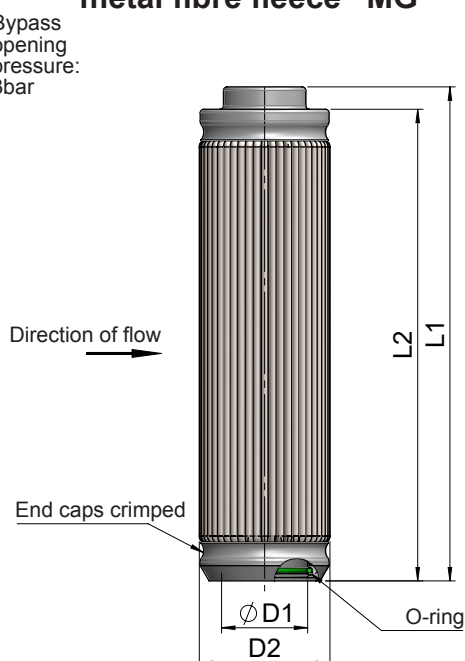
Size	Change-over valve		DN1	DN2	b1	h1	h2	h3	H1	H2	H3	L1	L2	B1	D1	D4	E1	E2	F1	F2	F3	F4
	Hand lever	Hand wheel																				
PRFLD 520x-F150	●		150	150	300	985	525	240	300	1320	1225	500	1560	12	1745	2045	581	406	380	22	G1/4	G3/4
PRFLD 520x-F200		●	200	200	300	1135	525	240	300	1495	1400	500	1735	12	1870	2170	645	406	380	22	G1/4	G3/4
PRFLD 520x-F250		●	250	250	300	1245	525	200	300	1645	1550	500	1885	12	2070	2370	743	406	380	22	G1/4	G3/4
PRFLD 650x-F200		●	200	200	300	1210	600	275	300	1565	1460	500	1805	12	2155	2455	720	508	480	22	G1/4	G3/4
PRFLD 650x-F250		●	250	250	300	1320	600	275	300	1755	1650	500	1995	12	2355	2655	818	508	480	22	G1/4	G3/4
PRFLD 650x-F300		●	300	300	350	1375	600	220	300	1805	1700	500	2055	12	2415	2715	850	508	480	22	G1/4	G3/4
PRFLD 1500x-F250		●	250	250	350	1390	670	250	300	1820	1700	500	2060	12	2750	3050	918	711	690	22	G1/4	G1
PRFLD 1500x-F300		●	300	300	350	1445	670	250	300	1895	1775	500	2135	12	2820	3120	953	711	690	22	G1/4	G1
PRFLD 1500x-F400		●	400	400	400	1590	670	200	300	2195	1975	500	2435	12	2915	3215	1002	711	690	22	G1/4	G1
PRFLD 2500x-F400		●	400	400	400	1870	950	350	300	2400	2275	1000	2640	16	3530	3830	1202	914	858	26	G1/4	G1

8. DIMENSIONS, FILTER ELEMENTS

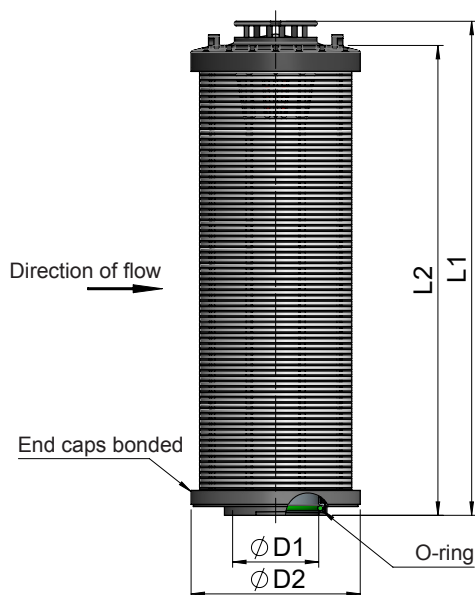
Wire mesh "D"
Chemicon®
metal fibre fleece "M"
Processmicron® PES



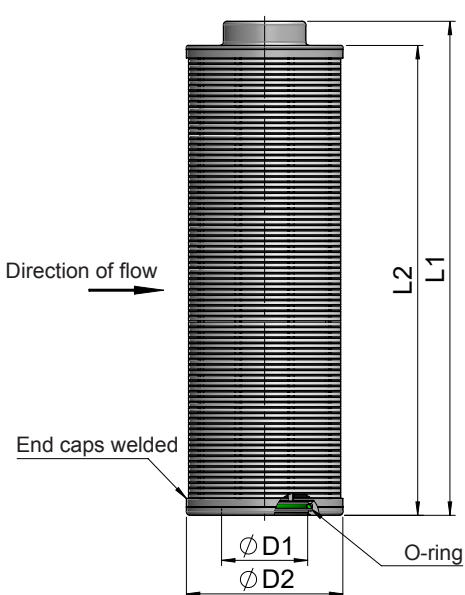
Wire mesh "DG"
Chemicon®
metal fibre fleece "MG"



Wedge wire S



Wedge wire SW



Values given in millimetres.
Subject to technical modifications.

Size	D1	D2	L1	L2
L-503-D/M/PES/S	48.1	95	276	263
L-853-D/M/PES/S	68.1	114	414	394
L-1303-D/M/PES/S	96.1	143	483	458
L-2603-D/M/PES/S	96.1	143	922	897

Size	D1	D2	L1	L2
L-503-DC/MC	48.1	76	276	263
L-853-DC/MC	68.1	91	414	394
L-1303-DC/MC	96.1	125	483	458
L-2603-DC/MC	96.1	125	922	897

Size	D1	D2	L1	L2
L-503-SW	48.1	87.4	276	263
L-853-SW	68.1	113	414	394
L-1303-SW	96.1	143	483	458
L-2603-SW	96.1	143	922	897

NOTE

The information in this brochure relates to the operating conditions and applications described.
For applications or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

HYDAC Process Technology GmbH
Am Wrangelflöz 1
D-66538 Neunkirchen
Tel.: +49 (0)6897 - 509-1241
Fax: +49 (0)6897 - 509-1278
Internet: www.hydac.com
E-mail: prozess-technik@hydac.com